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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/848,789

05/04/2001

Bruce A. Jennings

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7590

06/17/2004

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EXAMINER

TAMAI, KARL I

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/848,789

Applicant(s)

JENNINGS, BRUCE A

Examiner

Tamai IE Karl

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-17,20-27 and 48-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4-17,20-27 and 48-56 is/are allowed.
- 6) ☒ Claim(s) 57,58 and 63-69 is/are rejected.
- 7) ☒ Claim(s) 59-62 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The amended drawings filed on 4/12/2004 are approved.
2. The objection to the drawings under 37 CFR 1.83(a) is withdrawn.

Specification

3. The amended title of the invention, "Annular Electro-Mechanical Battery" is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The examiner suggests "Annular Electro-Mechanical Battery with Closed-Loop, Passive Magnetic Bearings".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 57, 65, 67, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett (US 4870310) and Post (US 6111332) and Hagiwara (JP 56-063,117). Triplett teaches an electromechanical battery having a sealed housing 20 with a central core 18 with an inner raceway. Triplett teaches a teardrop composite rotor 29 supported by magnetic bearings having close loop (short circuited) induction

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coils 17 on the rotor. Triplett teaches a motor/generator 32 for providing power input and output to the battery. Triplett teaches every aspect of the invention except halbach permanent magnets on the raceway opposite the induction coils on the rotor and the battery having a rotor spinning about the vertical axis. Post teaches electro-mechanical batteries can have halbach permanent magnets providing flux to the close loop induction coils create a passive (without sensors and control circuits) bearing system. Hagiwara teaches an induction coil magnetic bearing rotating about the vertical axis. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the electromechanical battery of Triplett with permanent magnets on the stator core because Post teaches that the permanent magnets will provide a passive bearing system, and with the rotor positioned to rotate around the vertical axis because Hagiwara teaches a closed loop coil can provide bouyance to a vertical rotor.

6. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett (US 4870310) and Post (US 6111332) and Hagiwara (JP 56-063,117), in further view of Gregoire et al. (Gregoire)(US 5695584). Triplett, Post, and Hagiwara teaches every aspect of the invention except the flywheel having first and second composite cores with composite filaments wrapped around the cores. Gregoire teaches the flywheel having first and second composite cores with composite filaments wrapped around the cores. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the machine of Triplett, Post, and Hagiwara with the flywheel having first and second composite cores with composite filaments wrapped around the

cores to provide a high strength flywheel operable at high speeds, as taught by Gregoire.

7. Claims 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett (US 4870310) and Post (US 6111332) and Hagiwara (JP 56-063,117), in further view of Yokono (JP 62-95952). Triplett, Post, and Hagiwara teaches every aspect of the invention except the stator magnet having three magnet arrays. Yokono teaches a passive bearing system with 3 sets of magnets 8 (figure 1) to provide stable rotation of the rotor. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the machine of Triplett, Post, and Hagiwara with three sets of magnets to provide stable passive rotation, and because it has been held that making integral what was formally a single piece is within the ordinary skill in the art. (see *Nerwin v. Erlichman*, 168 USPQ 177, 179).

8. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett (US 4870310) and Post (US 6111332) and Hagiwara (JP 56-063,117). Triplett, Post, and Hagiwara teach every aspect of the invention except the outside to inside diameter being 2:1. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the electromechanical battery of Triplett, Post, and Hagiwara with the outside to inside diameter being 2:1 in order to optimized the flywheel mass, and because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (see *In re Aller*, 105 USPQ 233).

9. Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Triplett (US 4870310) and Post (US 6111332) and Hagiwara (JP 56-063,117), in further view of Murakami et al. (Murakami)(JP 59-373,323). Triplett, Post, and Hagiwara teach every aspect of the invention except the interface between the coil and flywheel. Murakami teaches an interface 36 between the flywheel 3 and the rotor magnet to secure the magnet to the flywheel. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the electromechanical battery of Triplett, Post, and Hagiwara with the interface between the coil and flywheel secure the coil magnet to the flywheel, as shown in Murakami.

Allowable Subject Matter

10. Claims 1, 4-17, 20-27, and 48-56 are allowed.

11. Claims 59-62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is an examiner's statement of reasons for allowance: the prior art does not teach an electro-mechanical battery having a central core with an internal raceway fixed in a housing, where a composite rotor spinning within the housing, aligned with the vertical axis, and around the central core; and where the internal

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raceway has one or more sets of permanent magnet arrays disposed between the core and the rotor. The rotor having a plurality of closely spaced closed loop, embedded conductive coils which are wrapped around a first composite core of carbon fiber filaments in an epoxy matrix.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

13. Applicant's arguments filed 4/12/2004 have been fully considered but they are not persuasive. The Applicant's argument and 132 declaration is not persuasive because Triplett does teach a rotor which is "substantially tear dropped shaped" because is gradually transitions from a small end to the larger end, "substantially" like a teardrop. The applicant's definition of tear dropped is set for on page 6, paragraph 9, "continuously convex curved surface", however this limitation is not set forth in the claims or the specification. The term teardrop is not necessarily vague and indefinite, but it is a very broad limitation. In response to applicant's argument to the advantages of the tear dropped flywheel, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985)

Conclusion

14. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
June 11, 2004

A handwritten signature in black ink, appearing to read 'Karl I. Tamai', with a long, sweeping horizontal line extending to the right.

KARL TAMAI
PRIMARY EXAMINER